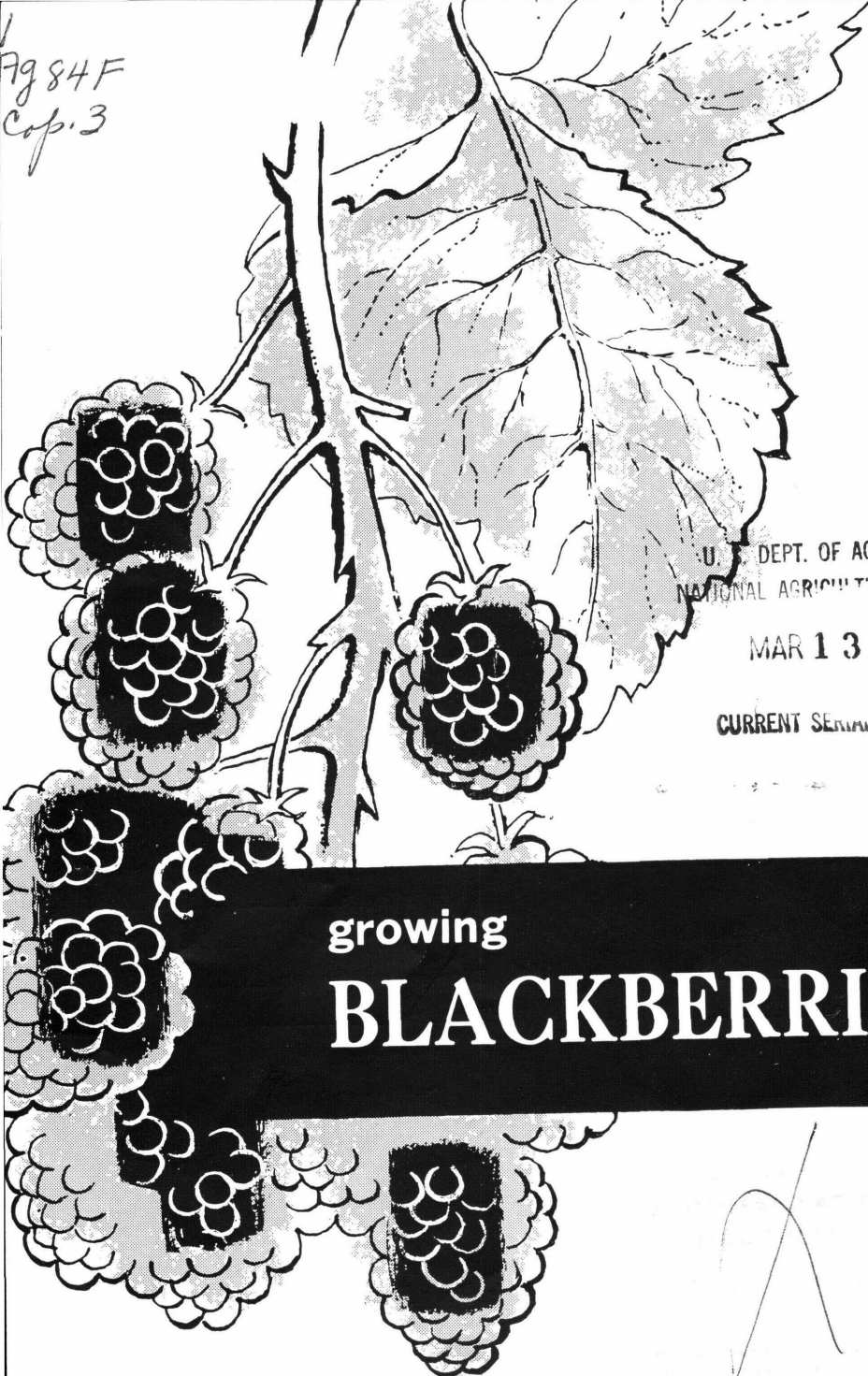


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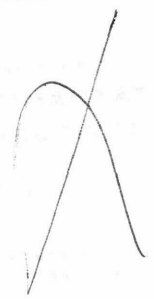


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CURRENT SERIAL RECORDS

growing
BLACKBERRIES



U.S. DEPARTMENT OF AGRICULTURE
Farmers' Bulletin No. 2160

A blackberry plantation that is properly managed should yield at least 2,000 quarts of berries per acre. To get the greatest yield and longest productive life from the plantation—

- Choose types and varieties that are adapted to your area.
- Prepare the soil thoroughly.
- Plant only highest quality stock.
- Cultivate frequently.
- Apply fertilizer every year.
- Thin out all weak canes and suckers.
- Protect plants from insects, diseases, and winter injury.

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"Growing Erect and Trailing Blackberries."*

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Growing

BLACKBERRIES

Prepared by Crops Research Division, Agricultural Research Service

Blackberries grow best in temperate climates. They are not well adapted to areas in the Plains States or Mountain States where summers are hot and dry and winters are severe.

TYPES OF BLACKBERRIES

The two types of blackberries—erect and trailing—differ primarily in the character of their canes. Erect blackberries have arched self-supporting canes. Trailing blackberries, also called dewberries, ground blackberries, or running blackberries, have canes that are not self-supporting; the canes must be tied to poles or trellises in cultivation.

The two types also differ in fruit characteristics. Fruit clusters of the trailing blackberry are smaller and more open than those of the erect blackberry. Trailing blackberries generally ripen earlier than the erect type.

Some varieties have canes that trail the first year, then grow erect the second year. These are called semitrailing blackberries, but they are essentially erect varieties.

PLANTING SITES

Availability of soil moisture is the most important factor to consider in choosing a planting site for blackberries. While the fruit is growing and ripening, blackberries need a large supply of moisture. During the winter, however, the plants are harmed by water standing around their roots.

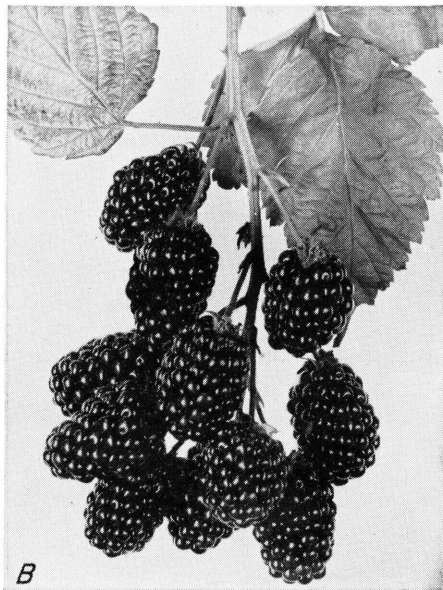
Almost any soil type is suitable for blackberries as long as the drainage is good.

In areas where winters are severe, the slope of the planting site is important. Blackberries planted on hillsides are in less danger of winter injury and damage from late spring frosts than those planted in valleys.

In areas where drying winds occur frequently, the plantation should be sheltered by surrounding hills, trees, or shrubs.

PLANTING

Plant blackberries as soon as you can prepare the soil—in early spring in the North, in late winter or early spring in the South.



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Typical fruit clusters of blackberries: A, Trailing varieties; B, erect varieties.

Preparing the Soil

Prepare the soil for blackberries as thoroughly as you would for corn. For best results, plow to a depth of 9 inches as soon as the soil is in workable condition. Disk and harrow the soil just before setting the plants.

Before establishing a new plantation, it is a good idea to seed and plow under one or two green-manure crops of cowpeas or of rye and vetch. This thorough working gets the soil in good condition for planting, and the added organic matter and nitrogen help the plantation to produce an early fruit crop.

Spacing the Plants

Set blackberry plants in rows that are 8 feet apart. Plant erect varieties 5 feet apart in the rows. Space vigorously growing varieties of trailing blackberries (see

descriptions of varieties, pp. 10 to 12) 10 feet apart in the rows. Space plants of other trailing varieties 6 to 8 feet apart.

Aline the plants in each direction.

Setting the Plants

Do not let planting stock dry out. If you cannot plant the stock as soon as you receive it, protect the roots from drying by heeling in the plants.

To heel in, dig a trench deep enough to contain the roots. Spread the plants along the trench, roots down, and cover the roots with moist soil.

If the plants are dry when you receive them, soak the roots in water for several hours before you plant them or heel them in.

When you are ready to set the plants in the field, dip the roots in a thin mud made with clay and water or cow manure and water. This coating helps to protect the

roots from rapid drying while the plants are being set.

Before setting the plants, cut the tops back so they are about 6 inches long. The 6-inch top is useful as a handle when setting the plants and will serve to show the location of the plants.

To make a planting hole, cut a slit in the soil with the blade of a mattock or shovel. Press the handle of the tool forward to open the slit.

Put the root of the blackberry plant in the hole. Set it so it is about the same depth as it was in the nursery.

Withdraw the blade of the mattock or shovel and pack the soil firmly around the root with your heel.

INTERCROPPING

During the first summer after the blackberry plants are set, vegetables can be grown in the middles between the rows. The vegetables provide some income the first year and cultivation of the vegetable crop is beneficial to the blackberry plants.

Good crops for this purpose are cabbage, cauliflower, beans, peas, potatoes, and summer squash. Do not grow grain crops; they are

not cultivated and they take too much of the moisture and nutrients needed by the blackberry plants.

Do not grow intercrops after the first year; blackberry plants of bearing size need all the nutrients and moisture for satisfactory production.

TRAINING

Train blackberry plants to trellises.

Erect blackberry plants can be grown without support, but many of the canes may be broken during cultivation and picking. Trellises will pay for themselves by reducing this damage.

Many trellis arrangements and methods of training are in use by blackberry growers. The simplest methods of trellis construction and of training are as follows:

- Construct trellises by stretching wire between posts set 15 to 30 feet apart in the row. For erect blackberries, use a single wire attached to the post about 30 inches from the ground. For semitrailing and trailing blackberries, use two wires, one about 3 feet from the ground and the



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Blackberry plants from the nursery, heeled in to keep the roots moist until the field is ready to plant.

other about 5 feet from the ground.

- Tie the canes to the wires with soft string. Tie erect varieties where the canes cross the wire. Tie trailing canes horizontally along the wires or fan them out from the ground and tie them where they cross each wire.

PRUNING AND THINNING

The crowns of blackberry plants are perennial; new canes arise from them every year. The canes are biennial; they live for only 2 years. During the first year they grow and send out laterals (side branches). The second year, small branches grow from buds on the laterals. Fruit is borne on these buds. After the laterals fruit, the canes die.

The laterals should be pruned back in spring. Fruit from pruned laterals is larger and of

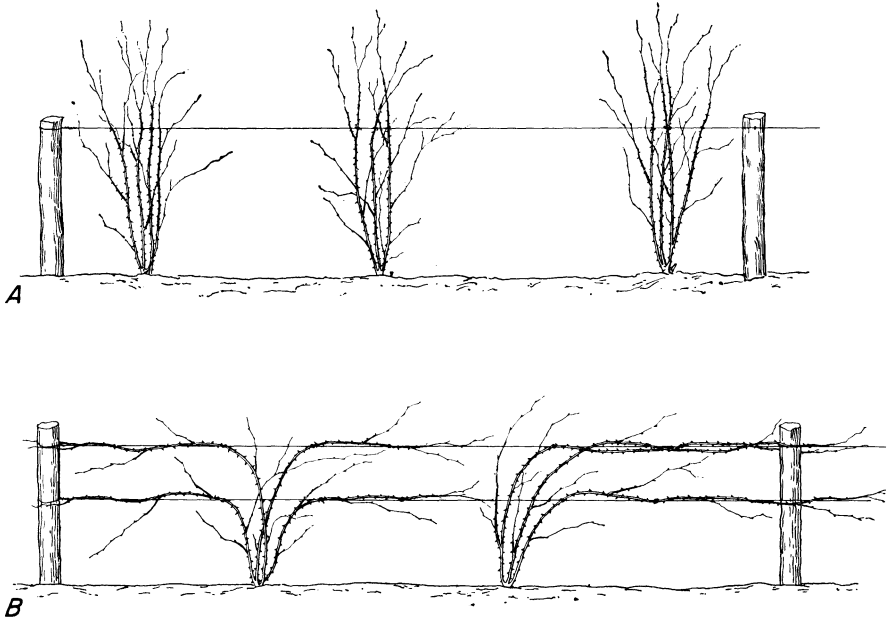
better market quality than fruit from unpruned laterals.

Before growth starts, cut the laterals back to a length of about 12 inches.

Erect blackberries send up root suckers in addition to the new canes that arise from the crown. If all the root suckers were allowed to grow, they would soon turn the blackberry plantation into a thicket.

During the growing season, remove all suckers that appear between the rows. Pull the suckers out of the ground. Suckers that are pulled do not regrow so quickly as suckers that are cut down.

When canes of erect blackberries reach a height of 30 to 36 inches, cut off the tips. This makes the canes branch. Tipped canes also grow stout and are better able to support a heavy fruit crop than untipped canes.



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Typical trellises for blackberries: A, Erect plants are trained to the one-wire trellis; B, trailing plants are trained to the two-wire trellis.

In summer, as soon as the last berries have been picked, cut out all the old canes, burn them, and thin the new canes. Cut out all but 3 or 4 new canes of erect varieties, 4 to 8 canes of semitrailing varieties, and 12 to 16 canes of trailing varieties.

In areas of the South where antracnose and rosette are serious diseases on blackberries, cut out all the canes—both old and new—after fruiting. Then fertilize and cultivate to promote growth of replacement canes for the next year's fruit crop.

If you let suckers form within rows of erect blackberries, thin the suckers to about three canes per lineal foot of row.

FERTILIZING

To get maximum yields from your blackberry plantation, apply fertilizer every year at blossoming time.

Stable manure, if available, is best for fertilizing. It supplies organic matter as well as nutrients. Apply 10 to 20 tons per acre.

If stable manure is not available, use commercial 5-10-5 fertilizer. Apply it as a topdressing at a rate of 500 to 1,000 pounds per acre.

CULTIVATING

Blackberry plantations should be cultivated thoroughly and frequently. If grass and weeds get a start, they are difficult to control.

Begin cultivating in the spring as soon as the soil is workable. Cultivate throughout the season as often as necessary to keep weeds down. This may be as often as once a week. Discontinue cultivation at least a month before freezing weather normally begins.

To avoid harming shallow roots

of the plants, cultivate only 2 or 3 inches deep near the rows. A tractor-mounted grape hoe or a rotary hoe are useful for cultivating in the rows and under trellises.

HERBICIDES

Weeds in rows and under trellises can be controlled with herbicides.

The recommended herbicides are—

- DNBP (4,6-dinitro ortho secondary butylphenol).

- Amine salt of 2,4-D (2,4-dichlorophenoxyacetic acid).

Prepare a spray by mixing one of the herbicides with water. Mix 2 to 4 pounds of DNBP—or $\frac{1}{2}$ to 1 pound of 2,4-D—with 20 to 40 gallons of water.

Spray the soil early in the season before weeds or new canes emerge. Apply DNBP or 2,4-D spray at a rate of 20 to 40 gallons per acre. Cover all soil in the row.

This treatment is usually effective for 30 to 60 days. Do not apply herbicide again until harvest is completed. If weeds begin to grow before that time, control them by hoeing.

For treatments after harvest, apply 2,4-D as a spray around the bases of the plants. Use the spray as required to control the young growing weeds. **CAUTION:** Do not spray during flowering or harvest. Do not allow spray to get on tips of canes.

Caution.—Some herbicides may be injurious to man and animals. Handle herbicides with care. Follow all directions and heed all precautions on the container label.

GROWING COVER CROPS

Winter cover crops help prevent soil erosion and they add humus to the soil. They also



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A, Erect blackberry plants before pruning; B, the same plants after pruning.

help protect blackberry canes during the winter by shielding the canes from drying winds.

Sow a cover crop at the last cultivation. Broadcast cowpeas or spring oats or drill rye and vetch in the middles.

Turn under the cover crop the following spring.

HARVESTING

Firm, ripe blackberries bring the highest market price. Berries that are picked at the proper time, handled carefully, and stored in a cool place will stay in good condition for several days. Berries that are overripe or injured spoil quickly.

Pick the fruit as soon as it becomes sweet. It should be fully ripened but firm.

Pick often. For most varieties, pick over the plantation every other day. Fruit of the Evergreen variety remains firm longer than that of other varieties and may be picked less frequently; once a week may be often enough.

Pick early in the day. Try to finish picking before the hottest part of the day. Blackberries do not spoil as quickly if they are picked in the morning as they do if they are picked in the afternoon.

Pick carefully. Do not crush or bruise the fruit. Place the fruit carefully in the berry baskets. As soon as the baskets are full, place them in the basket carrier, which should always be kept in the shade.

PROPAGATING

Blackberry plants are easy to propagate. Most growers propagate their own planting stock.

Erect blackberry plants can be propagated from root suckers. Trailing blackberries and some semitrailing varieties can be propagated by burying the tips of the canes, which root and form new plants. Both types can be propagated from root cuttings. This method yields the greatest number of new plants.

The easiest way to propagate erect blackberry plants is by transplanting root suckers in early spring. The root sucker should be dug with a piece of the old root attached. The new plants can be set out in the field immediately.

Propagate tip plants from trailing blackberries in late summer. Loosen the soil around each plant and bury the tips of the canes about 3 inches deep. Point the tips straight down in the soil.

The following spring, cut the new tip plants from the parent plants by severing the old cane. Leave 4 to 6 inches of old cane on the new plants. After the old cane is cut, the new plants are ready to be set out in the field.

To propagate from root cuttings, dig pieces of root from around established plants in early spring. The root pieces should be at least one-fourth inch in diameter. Cut the roots into 3-inch lengths and bury them in trenches 2 or 3 inches deep.

New plants, which come up from root cuttings during the growing season, can be set out in the field the following spring.

PREVENTING WINTER INJURY

Hardy varieties of blackberries can withstand still-air temperatures as low as -20° . Through-

out most of their range, blackberries need no special protection in the winter.

However, in areas where winter temperatures are colder than -20° or cold, drying winds are likely to occur, the plants should be protected during the winter. In the fall, after warm weather has ended but before the ground is frozen, bend the canes over to the ground and cover them with a layer of soil, straw, or coarse manure. Uncover the plants in spring after severe weather has ended.

In western Oregon, where winters are mild and moist, canes of trailing varieties often show a form of winter injury when they are allowed to lie on the ground. There, they are best tied to trellises in late summer and allowed to stay up through the winter.

DISEASES AND INSECTS

Diseases and insect pests of blackberries vary in type and severity from area to area. Your county agricultural agent or your State agricultural experiment station can tell you which blackberry pests are destructive in your area and can recommend methods for their control.

In all areas, damage from insects and diseases can be kept at a minimum if these general suggestions are followed:

- Choose disease-resistant varieties.
- Plant only healthy stock.
- Prune out insect-infested canes and burn them.
- Remove old canes after harvest.
- Keep the field free of weeds and fallen leaves.
- Destroy plants in which disease appears.
- Remove all wild blackberry and raspberry plants in the vicinity of

the field and destroy all plants in abandoned fields.

VARIETIES

Following are descriptions of the major blackberry varieties grown in the U.S. These descriptions include:

1. State where the variety originated.
2. Time of ripening.¹
3. Characteristics.
4. Area of special adaptation.
5. Disease susceptibility.

For variety recommendations, consult your county agricultural agent or your State agricultural experiment station.

Erect Varieties

ALFRED

1. Michigan.
2. Early.
3. Berries large, firm, sweet. Bushes hardy, very vigorous, productive.
4. Adapted to northern States, especially Michigan.
5. Susceptible to orange rust.

BAILEY

1. New York.
2. Midseason.
3. Fruit large, glossy black, medium firm. Bushes tall, vigorous, productive, hardy.
4. Grown in New York.
5. Susceptible to orange rust.

BLOWERS

1. New York.
2. Midseason; long fruiting season.
3. Berries large, firm, acid until ripe. Bushes hardy, vigorous, and productive.

¹The date of ripening cannot be given; it depends on many factors in addition to variety. The ripening time—very early, early, midseason, late, or very late—shows when a variety ripens in relation to other varieties grown on the same site. The time lapse between ripening of very early varieties and very late varieties may be as little as 20 days or as much as 40 days.

4. Adapted to Northeastern States, also Kentucky and Michigan.
5. Susceptible to orange rust.

BRAINERD

1. USDA.
2. Late.
3. Berries large, very tart, high flavored. Do not turn red after picking.
4. Grown mostly in Arkansas and western Oregon.

CRANDALL

(*Macatawa, Everbearing*)

1. Texas.
2. Very early; long fruiting season.
3. Berries large, firm, sweet. Bushes hardy to 0° with wind protection, vigorous, semitrailing, make few suckers. Productive.
4. Grown in southern California, eastern Texas. Not adapted to Northeastern States.

DALLAS

1. Texas.
2. Early.
3. Berries large, firm. Bushes semitrailing, vigorous, productive. Hardy to -10° with wind protection.
4. Grown in Texas and Oklahoma.

DARROW

1. New York.
2. Early; long fruiting season.
3. Berries glossy black, large, firm, mildly subacid. Bushes vigorous, hardy, very productive.

DELSWEET

See Evergreen. Berries of Delsweet are of slightly better quality than those of Evergreen.

EARLY HARVEST

1. Illinois.
2. Early; long fruiting season.
3. Berries medium size, firm. Bushes moderately vigorous, erect, very productive in the South. Desirable variety for the South.
4. Grown as far north as Maryland and southern Illinois.

EARLY WONDER

1. Texas.
2. Early.
3. Berries medium size, firm. Bushes vigorous, productive. Semitrailing.
4. A leading variety in Texas and Oklahoma.

ELDORADO

(*Stuart, Lowden, Texas*)

1. Ohio.
2. Early to midseason; long fruiting season.

3. Berries medium to large, firm, sweet. Bushes hardy, productive, very vigorous. One of the best varieties in adapted area.
4. Not adapted in the extreme South.
5. Most resistant to orange rust of widely grown varieties.

EVERGREEN

1. Origin unknown.
2. Late to very late.
3. Berries large, exceptionally firm, sweet. Seeds large. Bushes vigorous, productive, deep rooted, drought resistant. Hardy to -10° with protection. Canes semitrailing, root at tips.
4. One of the best varieties in Oregon, where the thornless form is the major variety, and in Washington. Not generally adapted to States east of the Rocky Mountains.
5. Susceptible to rosette in Atlantic Coast States.

HAUPT

1. Texas.
2. Late.
3. Berries large, fairly firm. Bushes very productive. Hardy to 0° if protected from wind. Canes semitrailing, root at tips.
4. Grown in eastern Texas.

HEDRICK

1. New York.
2. Early.
3. Berries large, glossy, firm. Bushes vigorous, productive, hardy.
4. Grown in New York.
5. Susceptible to orange rust.

HIMALAYA

(*Theodor Reimers*)

1. California.
2. Late.
3. Berries medium size, rather soft, sweet. Seeds large. Bushes very vigorous, very productive in some areas. Hardy to 0° with winter protection. Canes semitrailing, root at tips.
4. Standard late blackberry in California. Not adapted east of Rocky Mountains.
5. Immune to rosette.

JERSEYBLACK

1. New Jersey.
2. Early; long fruiting season.
3. Berries medium to large, firm, mildly subacid. Bushes semitrailing, vigorous, productive.

LAWTON

(*New Rochelle*)

1. New York.
2. Midseason.
3. Berries large, soft, sweet. Bushes vigorous, productive.
4. Grown mostly in Texas and Oklahoma.
5. Resistant to orange rust.

MCDONALD

1. Texas.
2. Very early.
3. Berries large, firm. Bushes vigorous, very productive. Hardy to 0° if protected from wind. Drought resistant. Semitrailing, canes root at tips. McDonald is self unfruitful; it should be planted with another variety that fruits at the same time.
4. Grown in Gulf coast region.

MERSEREAU

1. New York.
2. Midseason.
3. Berries large, firm, sweet. Bushes hardy, vigorous, fairly drought resistant, productive.
4. Adapted to Central and Eastern States.
5. Susceptible to orange rust.

NANTICOKE

(*Hirschi, Healthberry*)

1. Maryland.
2. Very late; long fruiting season.
3. Berries medium size, soft, sweet. Bushes hardy, vigorous, drought resistant, very thorny.
4. Good for home gardens.

RAVEN

1. Maryland.
2. Early, short ripening season.
3. Berries medium-large, medium-firm, very good subacid flavor. Bushes moderately vigorous, productive in South.
4. Grown from southern Pennsylvania and southern New Jersey southward and west to South Central U.S.

SNYDER

1. Indiana.
2. Midseason; short fruiting season.
3. Berries medium size, firm. Bushes hardy, vigorous, productive, do not produce many laterals. Not drought resistant.
4. Not adapted to heavy clay. Grown in northern U.S.
5. Less susceptible to orange rust than most other varieties.

THORNLESS EVERGREEN

See Evergreen. Propagate from tip plants only; root cuttings produce thorny plants.

WARD

1. New Jersey.
2. Late.
3. Berries large, firm, sweet. Bushes hardy, vigorous, productive.
4. Grown mostly in Oklahoma.

Trailing Varieties

ADVANCE

1. California.
2. Very early.
3. Berries large, exceptionally firm. Two distinct varieties sold as Advance; either alone is unfruitful.
4. Grown in Southern California and in Florida.
5. Very resistant to rosette.

AURORA

1. Oregon.
2. Very early.
3. Berries large, medium-firm, excellent flavor. Plants have medium vigor. Canes are pliable, not numerous, medium productive.
4. Pacific coast. Not adapted to East.

BOYSEN

(Boysenberry, Nectar, Rossberry, Lavaca)

1. Origin unknown.
2. Late.
3. Berries very large, tart, high flavor, soft.
4. Widely grown in South and on Pacific coast.

CASCADE

1. Oregon.
2. Early.
3. Berries bright, deep red, have excellent flavor, highest dessert quality. Plants vigorous, very productive. Hardy only in Pacific coast region.
4. Grown in western Oregon and Washington.

CHEHALEM

1. Oregon.
2. Late.
3. Berries small, shiny black, have excellent flavor. Seeds small. Plants vigorous, very productive.
4. Adapted to Pacific coast.

LOGAN

(Loganberry)

1. California.
2. Early.

3. Berries large, long, dark red, acid, high flavored. Plants vigorous, very productive. Thornless form most widely grown.
4. Grown on Pacific coast. Not adapted to East.

LUCRETIA

(Bingleberry)

1. West Virginia.
2. Early.
3. Berries large, long, firm. Plants vigorous, productive.
4. Hardy if protected against severe winter weather.
5. Susceptible to anthracnose and leaf spot.

MARION

1. Oregon.
2. Late.
3. Berries medium to large, bright black, of medium firmness. Plants very vigorous and productive. Canes heavy.
4. Adapted to western Oregon and western Washington.

MAYES

(Austin Mayes)

1. Texas.
2. Early.
3. Berries large, soft. Plants vigorous, productive.
4. Leading variety in Texas.
5. Susceptible to anthracnose and rosette.

NECTAR

See Boysen.

OLALLIE

1. Oregon.
2. Midseason.
3. Berries large, firm, bright black. Plants very productive, vigorous.
4. Adapted to California, western Oregon, and Gulf coast region.

PACIFIC

1. Oregon.
2. Early.
3. Berries small, deep red, tart. Plants productive.
4. Adapted to western Oregon and Washington.

ROGERS

See Advance.

YOUNG

(Youngberry)

1. Louisiana.
2. Midseason.
3. Berries very large, wine colored, very sweet. Plants vigorous.
4. Adapted in South and Pacific States.
5. Somewhat resistant to anthracnose and common leaf spot. Susceptible to rosette.